RECONNAISSANCE REPORT
EMERGENCY SNAGGING AND CLEARING
KONKAPOT RIVER
NORTH CANAAN, CONNECTICUT & SHEFFIELD, MASSACHUSETTS
FEBRUARY 1985

1. AUTHORIZATION

Studies of reconnaissance scope have been accomplished under the authority of Section 208 of the 1954 Flood Control Act, as amended. These studies have determined the need and feasibility of clearing snags and debris along the Konkapot River in Sheffield, Massachusetts which have created a flooding problem upstream in North Canaan, Connecticut. Federal assistance was requested by Mr. Henry E. Pozzetta, First Selectman of the town of North Canaan, in a letter dated 6 June 1983 (Inclosure 1).

2. DESCRIPTION OF AREA

The town of North Canaan is located in the northwest corner of Connecticut at the intersection of U.S. Routes 7 and 44, approximately 15 miles northwest of Torrington, Connecticut. In 1980 North Canaan had a population of 3,150, according to the State census. The town is mostly residential with some industrial and commercial development.

The town of Sheffield, Massachusetts lies to the north of North Canaan. It is a small rural community located in the southwestern corner of Bershire County.

The Konkapot River has its source at Lake Garfield in the town of Monterey, Massachusetts. It flows in a southerly direction through the town of New Marlborough, Massachusetts to the Massachusetts-Connecticut State line. In this 15 mile reach the river is very steep dropping from elevation 1,285 feet NGVD[1] at Lake Garfield to elevation 680 feet NGVD at the State line, for an average slope of about 40 feet per mile. From the State line the river continues to flow south through the town of North Canaan, Connecticut. However, in North Canaan the river starts flowing in a northwesterly direction back into Massachusetts where it empties into the Housatonic River in the Ashley Falls section of Sheffield, Massachusetts. In this 5 mile reach the river gradient flattens out considerably and has an average slope of about 5 to 8 feet per mile. It is in this reach where log jams and built-up debris have become obstructions to flow. The Konkapot River has a total drainage area of 61 square miles at Ashley Falls.

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[1]NGVD (National Geodetic Vertical Datum) is defined as the mean sea level of 1929.

There are no U.S. Geological Survey (USGS) gaging stations located along the Konkapot River. The USGS had maintained a gaging station on the Green River near Great Barrington, Massachusetts, but use of this gage as a continuous recording station was discontinued in 1971. The Green River is located in close proximity to the Konkapot River and has similar flow characteristics. Peak discharge frequencies were computed for the Green River and transferred to the Konkapot River by drainage area ratio. Peak discharge for various flood events are shown in Table 1.

TABLE 1
KONKAPOT RIVER, SHEFFIELD, MASSACHUSETTS
PEAK DISCHARGE

Date	Estimated Peak Discharge (cfs)	Approximate Frequency
September 1938	7,000	50-year
March 1983	800	< 2-year

3. PROBLEM DESCRIPTION

The problem area extends along the Konkapot River in Sheffield, Massachusetts from U.S. Route 7 upstream to the Massachusetts-Connecticut State line, a distance of about 1.5 miles (Inclosure 2). In this reach of the river, fallen trees and log jams have created an obstruction to flood flows which increases flood stages and causes several upstream dairy farms to be inundated. Inclosure 3 contains photos of fallen trees and log jams along the Konkapot River. Stage increases due to the log jams and fallen trees were estimated about 2 feet higher for frequent floods, about 1 foot higher for the 10-year flood, and virtually no increase for floods in the 50-year and greater frequency range (Inclosure 4). Past flooding has caused erosion and soil loss, and damages to corn crops and cattle grazing areas.

4. PLAN FORMULATION

In the project area there is a considerable amount of fallen trees and collected debris which restricts the channel causing a backup of flood flows during periods of heavy rainfall. As part of our investigation several alternatives were considered in response to the flood problem; including do nothing, upstream reservoirs, floodwalls or levees, and snagging and clearing measures.

(1) Do Nothing - If no remedial measures are taken additional debris will collect along this reach of the Konkapot River further restricting flows. Flooding conditions will occur more frequently inundating upstream dairy farms causing erosion and soil loss and damage to crops and cattle grazing areas. Local officials realize the seriousness of this problem but do not have the financial capability to implement effective flood control

measures. The "do nothing" alternative is clearly not in the public's best interest.

(2) Reservoirs, Floodwalls, and/or Levees - These alternatives would involve the construction of a reservoir with 20,000 acre feet of storage or approximately 2 miles of levees and/or floodwalls. The cost of these measures would far exceed any expected benefits and were not considered viable alternatives.

(3) Snagging and Clearing - Project formulation indicates that a plan of snagging and clearing, as outlined herein, provides an adequate level of protection at a minimum cost and is the most practical solution to the flood problem in this area. Proposed improvements are consistent with the capacity of the channel downstream of the project area. Additional work, such as channel widening, would require downstream improvements to be effective.

Snagging and Clearing was selected as the most feasible plan and was further examined to determine its effect on National Economic Development, the environment, and other regional and social conditions. The plan was also evaluated to determine its compliance with the Executive Orders concerning Flood Plain Management and Wetlands Protection (EO 11988 and EO 11990). A summary of these evaluations follow.

National Economic Development Snagging and clearing of debris from the Konkapot River would result in a net positive effect on the gross national product, and therefore, would serve the objective of national economic efficiency. Annual benefits attributable to this work are estimated to equal $55,000. When compared to the estimated annual cost of this work, $14,180, including $2,000 a year for maintenance, the ratio of benefits to costs is 3.9 to 1.

Environmental Quality

No adverse environmental impacts are expected to result from the removal of debris from the Konkapot River. The water quality of the river is expected to remain the same since any turbidity associated with the snagging and clearing operations should be only of short duration. No dredging will be performed in conjunction with this project.

Debris will be hauled to a disposal site outside the project area. Dead and living trees will be taken from the riverbanks to prevent reformation of log jams in the river. Fish and wildlife inhabiting the project area should be able to avoid debris removal operations, including the possible construction of an access road. Except for occasional transient individuals, no threatened or endangered species are known to exist in the proposed project area. It is also very unlikely that any cultural resources would be adversely affected by construction operations. See Environmental Assessment for complete discussion of environmental impacts.

Other Economic and Social Effects

The economy of the region would benefit from snagging and clearing measures, as the majority of benefits cited for the nation would accrue to the region and specifically the communities of Sheffield, Massachusetts and North Canaan, Connecticut.

In terms of social well-being, snagging and clearing measures will reduce flooding of upstream dairy farms. The aggravations of increased noise and dust from construction traffic and debris removal operations are expected to be short-term and generally less disruptive than the without project condition.

Flood Plain Management and Protection of Wetlands

In response to Executive Orders 11988 and 11990, impacts of the project on flood plain management and wetlands preservation are discussed below:

The proposed project is being performed so that the hydraulic conveyance of the river will not be restricted. The current accumulation of debris has in some instances incited the occurrence of floods on dairy farms located upstream of the debris concentrated areas. The construction of an access road may be required to reach isolated areas of debris. If so, it will be constructed on grounds adjacent to an existing gravel pit to avoid any adverse impacts to wetlands found within project boundaries.

5. THE RECOMMENDED PLAN

The problem area extends along the Konkapot River in Sheffield, Massachusetts from US Route 7 upstream to the Massachusetts-Connecticut State line.The recommended plan consists of removing all fallen and suspect trees, log jams, and miscellaneous debris from this portion of the Konkapot River, which hinder the passage of flood flows. This is the most practical and cost effective method of reducing future flood damages to upstream farmland. It provides a technically sound emergency solution to the flood problem and is understood and accepted by local interests.

6. ESTIMATE OF FIRST COSTS AND ANNUAL CHARGES

Work would include removal of debris from within the channel and standing dead and live trees rooted at or near the channel banks, which are scattered along 7,500 linear feet of the river. Although several sand and gravel shoals were present, accumulations were not significant and their removal (by excavation) was not included. Access to the majority of debris areas can be gained through properties along Route 124 in North Canaan. The cost of an access road 600 feet long, to reach the extreme downstream debris location was included in the estimate. It was assumed that the clearing would be done by a crew with chain saws and hand tools. Debris would be carried to a loading/chipping area located away from the river. Debris that could not be chipped would be hauled to a

disposal site within a 2-mile radius. It is estimated that this work would be completed within 2 months.

Estimates of first and annual project costs appear in Table 2. The crew outlined in Table 2 was assumed for estimating purposes. The local sponsor would be responsible for maintenance of the project after its completion, which is estimated at $2,000 annually. Unit prices used in cost estimating have been based on similar work performed in New England. A total annual cost of $14,180 was computed using a project life of 25 years (amortization period) and an interest rate of 8-3/8 percent.

TABLE 2
ESTIMATE OF FIRST COSTS AND ANNUAL CHARGES
EMERGENCY SNAGGING AND CLEARING
KONKAPOT RIVER, NORTH CANAAN, CONNECTICUT & SHEFFIELD, MASSACHUSETTS

(JANUARY 1985 PRICE LEVEL)

FEDERAL FIRST COSTS

Item	Quantity	Unit	Unit Price	Cost
ACCESS ROAD	1	L.S.	Job	$ 1,000
ASSUMED CREW	48	DAYS	$1,500	72,000
Front End Loader (2 CY) Dump Truck Winch Chipper Chain Saws (3) Loader Operator Truck Driver Laborers (5)				
				$ 73,000
			Contingencies	17,000
			TOTAL CONSTRUCTION COSTS	$ 90,000
			Engineering & Design	$ 18,000
			Supervision & Administration	13,000
			TOTAL FEDERAL FIRST COST	$121,000 *

*Does not include pre-authorized study costs of $17,500.

NON-FEDERAL FIRST COST

Lands & Easements	$ 5,000
TOTAL PROJECT FIRST COST	$ 126,000

ANNUAL COSTS

FEDERAL

Snagging & Clearing Project Amortization ($121,000 X 0.09669)	$ 11,700

NON-FEDERAL SPONSOR

Lands & Easements ($5,000 X 0.09669)	480
Operation & Maintenance	2,000
TOTAL ANNUAL COST	$ 14,180

7. ESTIMATE OF BENEFITS AND BENEFIT-TO-COST RATIO

Flood damages to agricultural properties along the Konkapot River in North Canaan, Connecticut, and Sheffield, Massachusetts, were surveyed in March 1984. Erosion and soil loss damages were estimated using updated rates from previous studies. Damages were estimated for various flood stages and then combined with hydrologic stage-frequency data (Inclosure 4) to estimate potential annual losses. Damages to crops and cattle grazing areas would only be experienced during the planting and growing season (April-September). Therefore, only half of these damages were used in estimating annual losses. Under existing conditions average annual losses were estimated to be $180,000. After removal of fallen trees and log jams, average annual losses would equal about $125,000. Thus, the benefits of clearing and snagging debris from the Konkapot River would be $55,000 annually. Compared to the estimated annual cost of the proposed project ($14,180), the ratio of benefits to costs is 3.9 to 1.

8. REQUIREMENTS OF LOCAL COOPERATION

The proposed snagging and clearing project lies entirely within Sheffield, Massachusetts and will reduce the risk and severity of future flooding of upstream dairy farms, located primarily in North Canaan, Connecticut. As indicated in their letter of 11 February 1985 (Enclosure 5), officials from both towns support the proposed project and intend to sign a formal agreement to provide the following local assurances:

(1) Provide without cost to the United States all lands, easements, rights-of-way, and utility relocations necessary for project construction. Lands and easements are currently estimated at $5,000.

(2) Hold and save the United States free from damages due to the construction, operation, and maintenance of the project, except where such damages are due to the fault or negligence of the United States or its contractors.

(3) Maintain the project after completion without cost to the United States in accordance with regulations prescribed by the Secretary of the Army. Annual maintenance costs are currently estimated to be $2,000.

(4) Assume responsibility for all costs in excess of the Federal cost limitation of $250,000. Current Federal costs, including study costs are estimated at $138,500.

(5) Prevent future encroachment which might interfere with proper functioning of the project.

9. RECOMMENDATIONS

I recommend that this report be approved as the basis for preparation of plans and specifications and construction of this project under authority contained in Section 208 of the 1954 Flood Control Act, as amended. It is further requested that the New England Division Engineer be designated the authority to approve construction plans and specifications.

Carl B. Sciple
Colonel, Corps of Engineers
Division Engineer

Incls
As stated

(1) Letter Requesting Assistance
(2) Location Map
(3) Photos
(4) Konkapot River, Stage-Frequency Curves
(5) Letter of Intent

Office of Selectmen

TOWN HALL • PEASE STREET • CANAAN, CONNECTICUT 06018

Telephone 824-7313

June 6, 1983

Division Engineer
Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, Massachusetts 02254

Dear Sir:

The Town of North Canaan is concerned with the conditions in the Konkapot River which passes through our northern border and into the State of Massachusetts on its way to the Housatonic River.

Considerable amounts of debris has accumulated in several locations causing the river to back up and overflow its banks during times of high water.

The accumulations are documented in the enclosed photographs taken by Mr. Fred Segalla, a dairy farmer, who has extensive land holdings along the river.

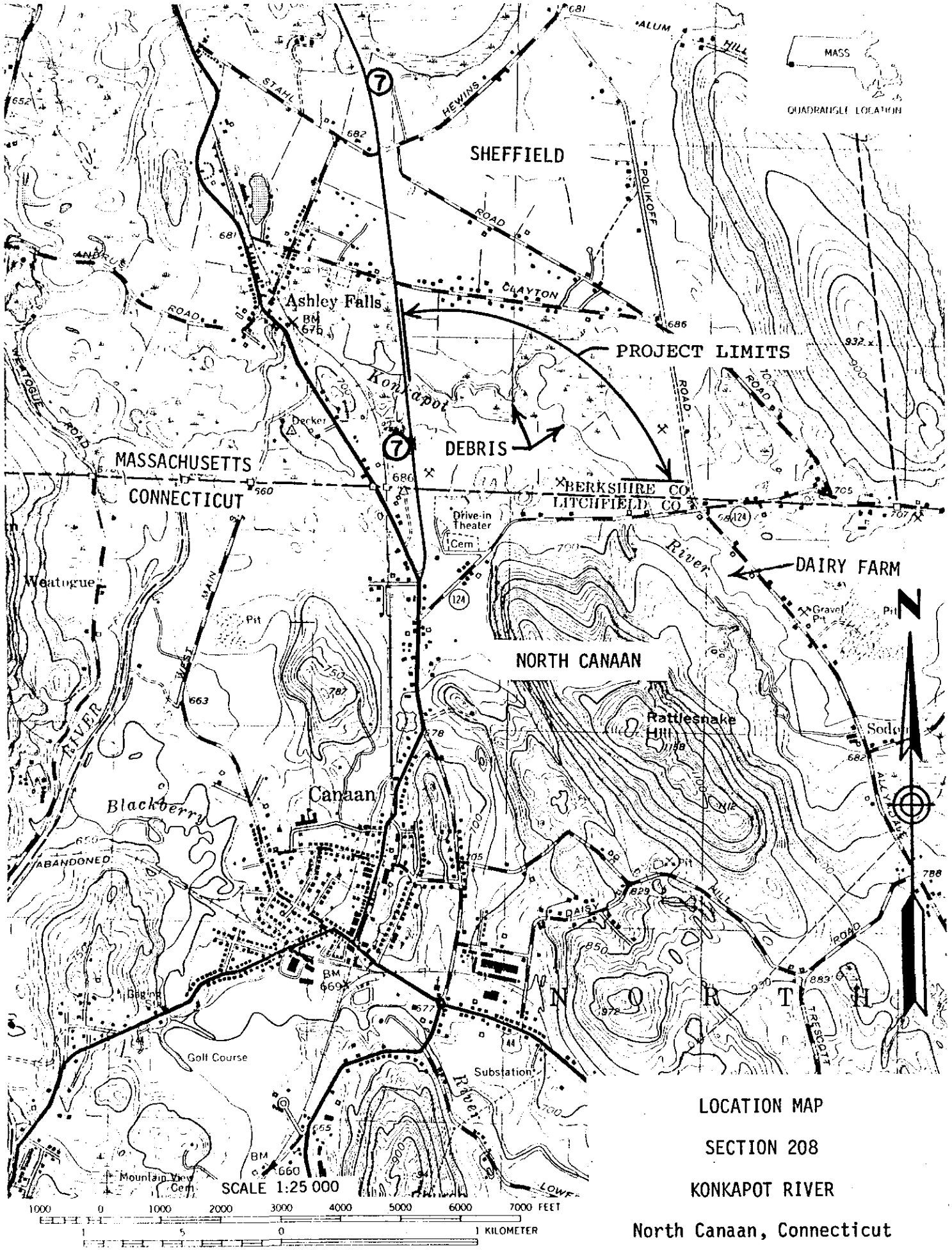
Are there provisions under the Corps Snagging and Clearing Authority, Section 208, Flood Control Act of 1954, as amended? Any assistance, or information from you to correct this problem would be greatly appreciated.

Sincerely,

Henry Segalla
First Selectman

HEP:dtp
Encs. (7)

ENCLOSURE 1



LOCATION MAP

SECTION 208

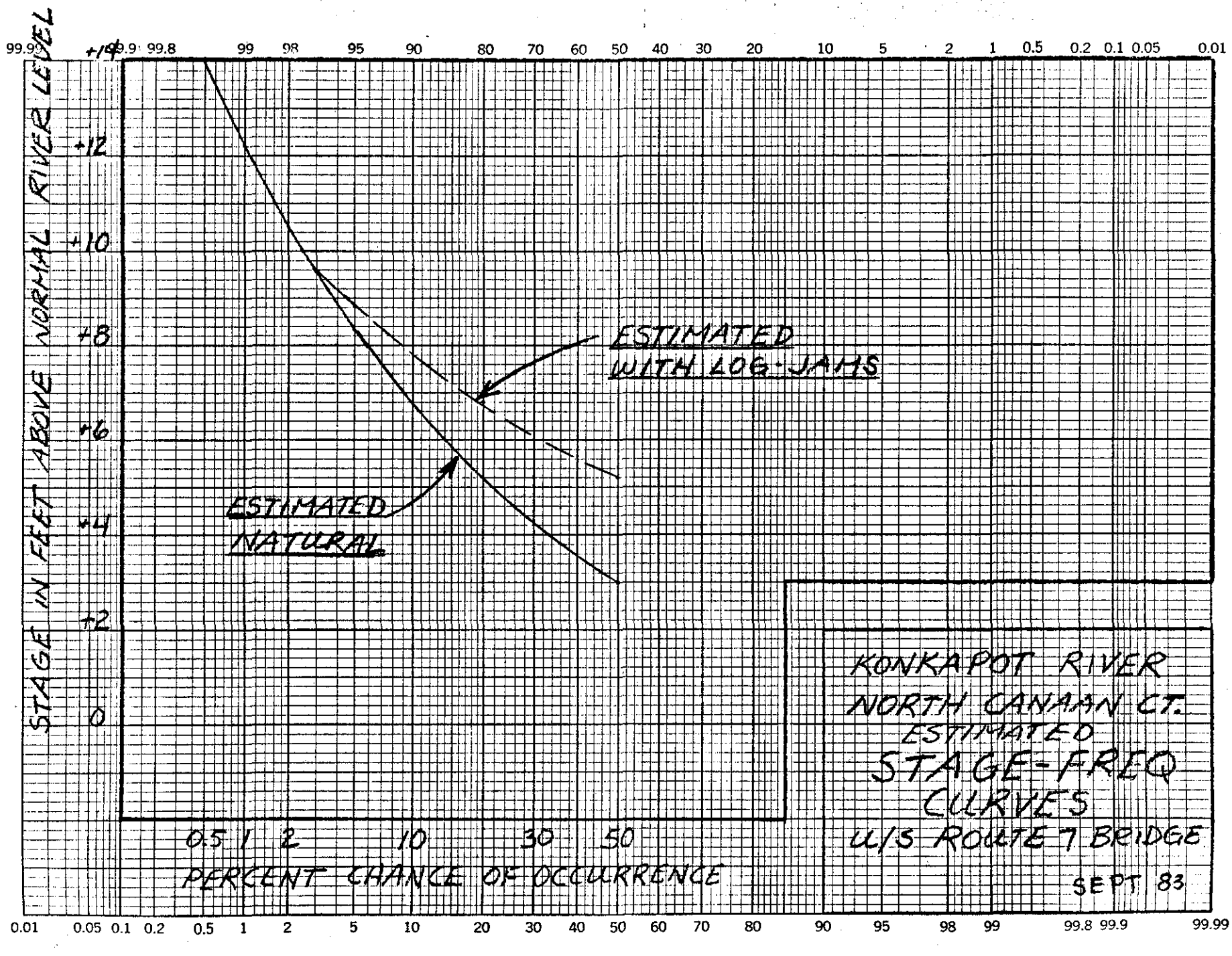
KONKAPOT RIVER

North Canaan, Connecticut

ENCLOSURE 2

Accumulated debris in the Konkapot River between Route 7 and Clayton Road in Sheffield, Massachusetts.

46 8003



ENCLOSURE 4

Office of Selectmen

TOWN HALL • PEASE STREET • CANAAN, CONNECTICUT 06018

Telephone 824-7313

Colonel Carl B. Sciple
Division Engineer
U. S. Army Corps of Engineers-NED
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Colonel Sciple:

The towns of North Canaan, Connecticut and Sheffield, Massachusetts support the proposed snagging and clearing project along the Konkapot River, as outlined in the draft reconnaissance report, and intend to provide all of the required items of local cooperation. The non-Federal share of project costs is currently estimated at $2,000. The proposed project would reduce the risk and severity of future flooding of upstream dairy farms, primarily in North Canaan, Connecticut.

We understand that a formal agreement of local assurances will be required after the reconnaissance report is approved by the Chief of Engineers and the preparation of plans and specifications are substantially complete. Provided our two communities can work out an acceptable arrangement to fulfill all of the required items of Local cooperation, we intend to sign a formal agreement at that time.

TOWN OF NORTH CANAAN

TOWN OF SHEFFIELD

Dated this 11th day of February, 1985.